

Chapter 2

WATER SUPPLY PLANNING PROCESS

PLANNING PROCESS COMPONENTS

The planning process used for creation of this water supply plan can be generally divided into three broad phases: assembling background information and development of tools, issue identification and analysis, and solution development (**Figure 3**). Public participation was ongoing throughout the planning process, from gathering background information from local governments to holding advisory committee meetings where water supply issues and potential water source options were explored. The goals and objectives, established with the assistance of the advisory committee, provided the overall framework for the planning process.

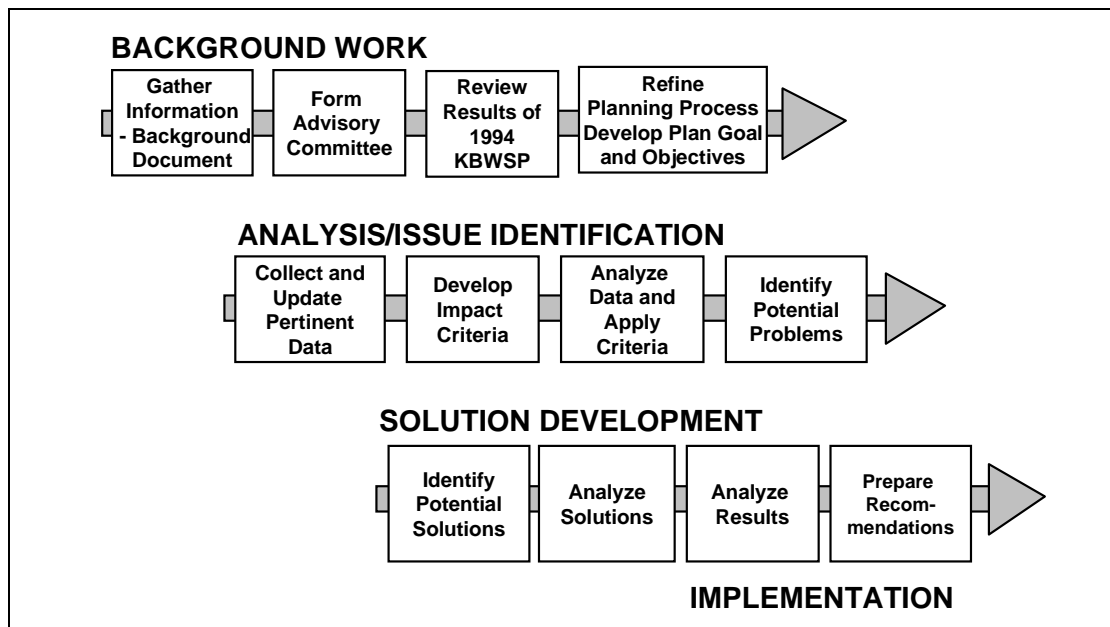


Figure 3. The Kissimmee Basin Planning Process.

Background Work

Background Information

The District project team compiled the initial background information required for decision making later in the process. This background information included pertinent statutes and technical documents, historical information, rainfall data, land use and population information, water use demand projections, hydrogeologic and water resource information, water use permit information, details of utilities in the Kissimmee Basin (KB) Planning Area, environmental information, and water source option concepts. The urban water use demand projections were based on population projections published by the Bureau of Economic and Business Research (BEBR), while agricultural demand

projections were based primarily on long-term historical trends. All of this information was then consolidated into the Support Document and associated appendices to be used by the project team and advisory committee members. As the planning process ensued, these documents were updated where new information became available.

Tool Development

Another significant preparatory task was the identification, development and refinement of analytical tools needed for subsequent stages of the process. This included the use of three regional ground water models for the (1) Orlando metropolitan area, (2) Osceola County, and (3) Glades, Okeechobee, and Highlands counties. In addition, a surface water budget assessment was developed for the Lake Istokpoga-Indian Prairie Basin. Model preparation involved the assembly of substantial amounts of information, including statistical analyses of rainfall events in the region, and descriptive data pertaining to aquifer characteristics such as transmissivity.

Advisory Committee Formation

A 24 member advisory committee, with approximately 12 alternate members, was created to obtain public participation in the planning process. Membership included representatives of federal, state and local agencies, planning officials, public water supply utilities, local business community, environmental interests, community leadership, and agricultural concerns. Each of the advisory committee meetings was advertised and open to the public.

The primary role of the committee, as well as the general public who attended these meetings, was to provide input at each stage of the water supply planning process, contribute local knowledge and expertise, and to reflect the collective concerns and interests of various stakeholders in the KB Planning Area. The role of District staff was to facilitate the planning process, provide professional and technical support and guidance, and prepare the planning document with committee input.

The advisory committee spent the initial monthly meetings listening to background presentations, sharing information and improving the District's understanding of the local issues. The goals and objectives established by the advisory committee served as a "road map" for the subsequent planning process. Topics scheduled for committee discussion, research and analytical work, and formulation of final recommendations all centered on these goals. Completion of the plan's initial goals marked the transition into the analytical phase of the process.

The advisory committee met a total of 17 times between November 1998 and April 2000. After plan approval, committee members will continue to be informed of the implementation activities through newsletters or periodic status meetings, and the Five-Year Water Resource Development work plan based on the KB Water Supply Program.

In addition, a subcommittee or focus group to the advisory committee was formed to evaluate options and develop recommendations for issues associated with surface water

availability in the Lake Istokpoga-Indian Prairie Basin. The focus group was composed of agricultural water users, the local government for Highlands County, local lake interest groups, representatives of the Seminole Tribe and members of the public. The members drew upon their local knowledge and experience with Lake Istokpoga and the Indian Prairie Canal system to formulate water supply strategies and recommendations. This focus group met four times during the period of May 1999 to January 2000.

The focus group was instrumental in providing input on projected agricultural water use and formulation of the water source options and strategies for the region. The group also provided critical review of the results of a surface water management analysis upon which the water source options were evaluated. The final water source options and associated recommendations were brought back to the full advisory committee prior to plan approval.

Analysis and Issue Identification

The analytical tools used in the development of this plan include ground water models, surface water management assessments, and wetland vulnerability mapping. Ground water modeling was conducted to predict the impacts of projected water demands on the resource. In an effort to better assess the ground water conditions within the planning basin, three ground water models were used. Two of these models were developed by SFWMD staff and include the Osceola County model and the Glades, Okeechobee, and Highlands (GOH) County model. The third model was developed under contract with the U.S. Geological Survey (USGS) in conjunction with the SFWMD and SJRWMD. This model focused on Orange County and the metropolitan Orlando area. In addition to these three models, efforts were made to compare the results of these simulations with those completed by the SJRMWD and SWFWMD where their respective work overlapped.

In addition to the ground water modeling, surface water availability in Lake Istokpoga and its associated canal system was evaluated. This analysis included statistical and water budget assessments of the availability of water afforded by the current regulatory operation through the primary release structure, S-68, and other canal structures. A relationship between individual structure releases and basin climatic conditions was identified to determine surface water availability during a 1-in-10 drought. These results were then compared to estimated water use demands for the years 1995 and 2020. The use of Lake Okeechobee as an alternative source was also investigated as part of the Lake Istokpoga area investigation. The evaluation was performed using the South Florida Water Management model (SFWMM), a tool utilized in the Lower East Coast Regional Water Supply planning effort.

A vulnerability mapping technique was used to identify wetland areas that have the highest potential for harm due to water use relative to the rest of the KB Planning Area. The vulnerability analysis incorporated factors influencing possible wetland drawdown, including thickness of confining units, location of wetlands, and drawdown in the Floridan aquifer. These factors were combined using Geographic Information System

(GIS) software in an overlay process. The overlay of these ranked factors identified areas where wetlands have the highest potential to experience harm.

In addition to ground water modeling, surface water management assessments, and vulnerability mapping, additional qualitative methods were used to assess the potential movement of poor quality water in the ground water system, impacts to lakes and the potential for the occurrence of sink holes. In addition to the spring discharge criterion in Chapter 4. There are currently 12 surface water bodies and the Floridan aquifer in the KB Planning Area on the District's priority water schedule. The purpose of establishing minimum flows and levels is to protect water resources from significant harm due to withdrawals. Additional detail on the potential problem areas identified and the analytical work conducted is provided in Chapter 4.

Solution Development

Results of the analytical work identified several water resource problem areas may occur as a result of the projected increase in water demand. Once these potential problems areas were identified, a series of water source options (also referred to as water supply alternatives) were evaluated to determine their effectiveness in resolving the potential problems. Options that were evaluated included increased water conservation, reclaimed water use, increased Floridan aquifer use, additional surface water storage and other approaches. This planning document presents the evaluation of the water source alternatives, and the resulting recommendations and strategies for implementation.

PLAN IMPLEMENTATION

Implementation is one of the most important phases of the KB Water Supply Plan, in that strategies developed during the planning process are carried out to ensure adequate water supply through 2020. Implementation will follow approval of the plan by the SFWMD Governing Board, and will involve coordination with other agencies and their planning efforts. Other components of implementation may include additional data collection, research, cost-share projects, capital construction, and rulemaking. Specific plan implementation strategies are discussed in Chapter 6. After approval by the SFWMD Governing Board, this water supply plan will be updated at least once every five years. Nothing herein is intended to affect the substantial interests of a party. Additional agency action, whether by order or rule, will be necessary to implement the plan.

Regional Water Supply Plan Implementation Assurances

Regional water supply plans (RWSPs) are developed and implemented pursuant to Chapter 373, F.S. Likewise, the level of assurances in protecting existing legal water users and the natural systems ("assurances") while implementing the RWSPs must be consistent with this state law.

In this implementation process, the governing board will be faced with many policy decisions regarding the application and interpretation of the law. The unique legal, technical, economical and political implications of the RWSPs will all be considered in making these policy decisions. The District will be facing many of these issues for the first time in terms of their scale and significance.

The subject of "assurances" has been addressed in other forums, particularly in the Central and Southern Florida Project Comprehensive Review Study (Restudy) (April 1999), which was approved by the Governing Board. The language regarding "assurances" as incorporated into the Restudy was originally drafted by the Governor's Commission for a Sustainable South Florida and set forth in its final Restudy Plan Implementation Report (1999). This language is provided in Appendix A. Although these "assurances" were developed in the context of the Restudy implementation, such assurances are applicable to implementation of regional water supply plan recommendations under Florida law.

COORDINATION

Development of the KB Water Supply Plan was coordinated with several other planning efforts in the region, as well as with many other entities, to ensure an integrated approach and compatibility with local and regional plans.

Related Planning Efforts

Water management planning efforts in the KB Planning Area include a variety of interrelated studies and activities, in both the public and private sectors. Each plan or study addresses unique water management issues while maintaining close relationships with water supply planning (**Table 1**).

The related efforts with the most significant influence on the implementation of the KB Water Supply Plan include the Comprehensive Everglades Restoration Plan (CERP) and the establishment of minimum flows and levels to several lakes and the Floridan aquifer in the Kissimmee Basin. The CERP will address the regulation schedule of Lake Istokpoga and the amount of water potentially available from the lake. This plan will also consider construction of storage (reservoirs and ASR) north of Lake Okeechobee, primarily for water quality purposes. These facilities will influence recommendations regarding the use of Lake Istokpoga and Lake Okeechobee as water sources in the Lake Istokpoga-Indian Prairie Basin. In addition, establishing minimum flows and levels for 12 lakes and Floridan aquifer will more clearly define the quantity of water available for consumptive uses (these recommendations are further described in Chapter 5).

Other water supply planning efforts within the SFWMD include the Upper East Coast, Lower West Coast, and Lower East Coast water supply plans. The Upper East Coast Water Supply Plan is in its third year of implementation. The remaining plans were brought before (and approved) the Governing Board in April 2000. A common issue of the

Table 1. Kissimmee Basin Related Water Management Planning Efforts.

	Scope/Primary Goal	Relationship to KBWSP	Timeframes
KBWSP	Adequate and reliable water supply	Not applicable	Plan Completion: 2000 Horizon: 2020
Kissimmee Chain of Lakes Water Management Plan	Environmental enhancement of Kissimmee Chain of Lakes	Changing lake regulation schedules	Final plan FY99
Kissimmee River Restoration	Environmental restoration of Kissimmee River floodplain. Improved surface water quality.	Changing deliveries to Lake Okeechobee	2015
Lake Okeechobee (L.O.) SWIM Plan	Protection and enhancement of Lake Okeechobee and its watershed (water quality)	Discharge water quality and nutrient loading from the Kissimmee River	Update completed 1997. Next update 2000.
Lake Okeechobee Regulation Schedule Environmental Impact Study	Evaluates environmental and economic impacts associated with proposed L.O. Regulation Schedules (quantity)	Discharge quantity from the Kissimmee River	1999
C&SF Project Restudy	Comprehensive review of environmental impacts of C&SF project	L.O. storage and treatment, including reservoirs and aquifer storage and recovery (ASR)	Preparation: 1995-1999 Horizon: 2050
Comprehensive Everglades Restoration Plan	Implementation of C&SF Project Restudy	Lake Istokpoga Regulation Schedule, potential construction of reservoirs and ASR system north of L.O.	2000-2050
Kissimmee Basin Minimum Flows and Levels	Prevent significant harm to the water resources and ecology of surface water and ground water resources in the Kissimmee Basin	MFLs will more clearly define the quantity of water available for consumptive uses. Recovery or prevention strategy has potential to alter future water management activities, including use of water resources in the Kissimmee Basin	2004-2006

Kissimmee Basin and these other plans is the use of water from Lake Okeechobee as a water supply source.

Intergovernmental Agreements

Two existing intergovernmental agreements in the KB Planning Area that facilitate coordination between the SFWMD and other entities are the Memorandum of Understanding (MOU) between the SFWMD, SJRWMD, and SWFWMD; and the agreement between the SFWMD and Seminole Tribe.

The purpose of the MOU is to establish processes by which water resource investigations, planning, regulation and water shortage efforts may be coordinated and consistently applied between the three districts. The agreement with the Seminole Tribe outlines surface water control strategies to the Brighton Reservation to assure maximum

reliability of surface water deliveries to meet the Tribe's entitlement. These agreements are discussed in further detail in Chapter 5 of the Support Document.

In addition, the District will coordinate the implementation of the KB Water Supply Plan with local governments/utilities, the Lower East Coast Regional Water Supply Plan, the C&SF Comprehensive Review Study, the Comprehensive Everglades Restoration Plan (the implementation phase of the C&SF Restudy), and other related efforts to promote compatibility.

